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MARKING SHEET [Makingu Shito]

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TITLE	(54):	MARKING SHEET
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Specification

1. Title of the invention

Marking sheet

2. Patent Claims

- 1. A marking sheet which is a marking sheet in possession of a marking substrate wherein an application sheet has been temporarily adhered to the upper plane thereof and wherein a peelable paper has been pasted, via a tackifier layer, onto the lower plane thereof and is characterized by the configuration of through-holes with diameters of $0.2 \sim 1.0$ mm punching through the aforementioned marking sheet at intervals of $1 \sim 10$ mm.
- 2. A marking sheet mentioned in Claim 1 wherein said application sheet is devoid of through-holes.
- 3. A marking sheet mentioned in Claim 1 wherein said peelable paper is devoid of through-holes.
- 4. A marking sheet mentioned in Claim 1 wherein said application sheet and peelable paper are devoid of throughholes.
- 5. A marking sheet mentioned in Claim 1 devoid of said application sheet.
- 6. A marking sheet mentioned in Claim 1, 2, 3, 4, or 5 wherein said through-holes have been formed by means of a punching work.

7. A marking sheet mentioned in Claim 1, 2, 3, 4, or 5 wherein said through-holes bear circular or elliptical shapes.

3. Detailed explanation of the invention

(Industrial application fields)

The present invention concerns a marking sheet used for marking exteriors of vehicular frames of various transportation vehicles, machines, [other?] vehicles, etc., for outdoor billboards, for the marking and displays of store interiors, etc.

(Prior art)

A marking sheet known in the prior art may, on an occasion marking the exteriors of vehicular frames of transportation vehicles, machines, etc., for example, be used for a specified marking operation by removing a peelable paper pasted onto the adhesion plane of a specified marking sheet and by pasting the remainder to the aforementioned adhesion target plane via a tackifier, whereas local peels or bulges may arise on an occasion for pasting the marking sheet due to the entrapment of air, etc. in-between said sheet and the adhesion target or to the generation of a gas, etc. from

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the adhesion target upon the completion of pasting, as a result of which not only does the physical appearance become

tarnished but a grave endurance loss also occurs. For the purpose of eradicating these inconveniences, a method wherein [a marking sheet is?] pasted in a state where the surface thereof is being pressed with a mobile pasting tool (e.g., spatula, etc.) is being used, although it is extremely difficult to achieve a homogeneous adhesion contiguity over the entire plane, and furthermore, advanced skills considerable labor and time burdens are required for realizing this goal. The following embodiments have, example, been conceived for the purpose of eradicating these shortcomings: One wherein air release holes are configured on a tackifier layer-laminated substrate constituting a marking sheet, one wherein the aforementioned substrate is formed by gas-permeable fibers, one wherein a gas-permeable porous layer comprising of a foam, paper, etc. is configured inbetween a substrate and a tackifier layer, one wherein a foamy porous tackifier layer is formed, one wherein a continuous porous plastic film bearing an average pore size of 2 \sim 50 μ m, a gas transmission rate of 2 sec/100 cc \sim 120 sec/100 cc, and a thickness of at least 20 μm is used as the aforementioned substrate, etc., although they have yet to satisfactory results fully in terms permeability, endurance, operative efficiency, manufacturing difficulty, etc. In a case where holes are punched through by using a hole drilling tool with a sharp tip for the purpose of configuring air release holes on the aforementioned substrate, furthermore, not only do splinters, wraparounds,

depressions and protrusions, etc. arise on the circumferential walls of such holes but the bottoms of the same also become cracked, etc., due to which such accidents as peeling, etc. are likely to arise upon the completion of pasting.

(Problems to be solved by the invention)

The objective of the present invention is to provide [a marking sheet?] bearing a moderate gas permeability and capable not only of facilitating a contiguous total plane adhesion but, by virtue partially of the shapes, etc. of concomitantly formed gas-permeable holes, also of yielding markings with excellent endurances and favorable physical appearances.

(Mechanism for solving the problems)

The aforementioned objective is achieved according to the present invention by arraying, at intervals of $1 \sim 10$ mm, preferably $5 \sim 10$ mm, through-holes with diameters of $0.2 \sim 1$ mm, preferably $0.5 \sim 0.8$ mm, punching through either the entirety of a laminate comprising of a marking substrate wherein an application sheet has been temporarily adhered to the upper plane thereof and wherein a peelable paper has been pasted, via a tackifier layer, onto the lower plane thereof, the portion of the aforementioned laminate other than said application sheet, the portion of the aforementioned laminate other than said peelable paper, or the portion of the

aforementioned laminate other than said application sheet and peelable paper. Said through-holes may be configured in a zigzag array, lattice-shaped array, etc. (Figure 6A and B), whereas said zigzag array is favorable from the standpoint of mitigating the generation of streaks on a printing occasion.

Moreover, the aforementioned through-holes may be formed by means of a punching work, whereas said through-holes may, furthermore, be formed to bear circular or elliptical shapes.

As far as the present invention is concerned, throughholes with diameters of 0.2 ~ 1.0 mm are arrayed at intervals of 1 ~ 10 mm, based on which it becomes possible, even in a case where air has become trapped in-between a marking sheet and a marking and adhesion target on an occasion for pasting the former onto the latter, to achieve a contiguous adhesion state with ease by evacuating air through said through-holes and to facilitate a work yielding a favorable finished physical appearance accompanied by neither peels nor bulges. In a case where hole diameters exceed said range, a tackifier fluidizing tendency becomes prominent, and since diameters become constricted, the gas permeability becomes hindered, accompanied by the invasions of water and other harmful liquids, harmful gases, dirt and dust, etc. through the holes, as a result of which the endurance becomes exacerbated due to the degradation of the adhesion plane, and undesirable physical appearances such as the conspicuity of holes, baring of the base, etc. become unavoidable. In a case where the diameters are smaller than said range, furthermore,

the gas permeability becomes insufficient, and it becomes difficult to open holes by means of a punching work. Moreover, in a case where the interval in-between holes exceeds the aforementioned range, it becomes difficult to smoothly evacuate air, gases, etc. trapped in-between holes, whereas in a case where the same is below the aforementioned range, it becomes difficult to open holes by means of a punching work.

Through-holes, furthermore, are formed to bear circular or elliptical shapes, preferably perfectly circular shapes or circular shapes nearly perfect, whereas on such an occasion, holes are formed by means of a punching work using sharp cyclic blade molds bearing shapes analogous to those of the aforementioned holes (Figures 8A and B), based on which it becomes possible to avoid the persistence of splinters, depressions and protrusions, etc. on through-hole wall planes as well as cutting debris (e.g., wraparounds, etc.) on circumferential edges of through-holes, and since factors contributing to such accidents as cracks, peels, etc. can be eradicated, markings with further improved endurances and physical appearances can be obtained.

(Application examples)

Application examples will be explained with reference to figures; in Figure 1, an application sheet (2) made of a transparent or semi-transparent paper, plastic film, etc. is temporarily adhered to the upper plane of a marking substrate

(1) via a slightly tacky or re-peelable tackifier (3) for temporary adhesion, whereas a tackifier layer (4) made of a conventionally known tackifier of the acrylic, rubbery, or silicone type, etc. is configured on the lower plane of the aforementioned marking substrate, whereas a material to be used as a marking sheet is formed by temporarily adhering a peelable paper (5) to said tackifier layer. The aforementioned marking substrate (1) can be formed by a specifiably colored plastic film or a corresponding film wherein the surface thereof has been specifiably coated with certain color, characters, emblems, patterns, Moreover, it is also possible to use an ink film formed by acrylic resin, urethane printing an resin, polyester, polyolefin, polyvinyl polymer, ethylene-vinyl acetate copolymer, etc. with a specifiably colored printing ink based

on a conventionally known printing method (e.g., screen printing, offset printing, flexo printing, gravure printing, etc.) or ordinary coating method, etc.

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Configured on this material at hole-to-hole intervals of approximately 5 ~ 10 mm are through-holes (6) with hole diameters of approximately 0.6 ~ 0.8 mm punching through said laminate. A punching work is executed by using an upper mold (press mold) (11) on which large numbers of blade molds (11a) in possession of sharp cyclic blade tips equivalent to to-bepunched hole diameters are arrayed at the aforementioned interval and a lower mold (reception mold) (12) on which hole

molds (12a) corresponding to said blade molds are likewise arrayed for receiving said blade molds (Figure 8A), based on which the targeted through-holes (6) (Figure 7) become formed.

The marking sheet of Figure 3 is formed according to procedures virtually similar to those for forming its counterpart of Figures 1 and 2 except that no through-holes are configured on an application sheet (2) in possession of a tackifier (3) for temporary adhesion, whereas the sheet of Figure 4 is formed according to procedures virtually similar to those for forming its counterpart of Figures 1 and 2 except that no through-holes are configured on a peelable paper (5), whereas the sheet of Figure 5 is formed according to procedures virtually similar to those for forming its counterpart of Figures 1 and 2 except that no through-holes are configured on a marking substrate (1) and a tackifier layer (4). The respective sheets can be similarly used. It is conceivable to configure, on the application sheet, tabs (e.g., lengthwise, widthwise, or lengthwise and widthwise, etc.) serving as guidelines of pasting positional relations on an occasion for applying this marking sheet to an adhesion target for the purpose of facilitating a pasting operation. It is also conceivable, as has been mentioned earlier, not to laminate an application sheet on the marking sheet.

(Effects of the invention)

Based on the above-mentioned constitution of the present invention, utterly no splinters, depressions and protrusions, etc. exist on the circumferential edges of through-holes, and factors contributing to cracks, peels, etc. are absent; moreover, air, etc. trapped in-between [the marking sheet?] and adhesion target on an occasion for applying [said sheet?] to the adhesion target can be easily released through the through-holes, based on which a homogeneous adhesion contiguity can be achieved over the entire plane, whereas utterly no local bulges arise on the marking plane, accompanied by the absence of splinters, cracks, etc. on the circumferential walls of the aforementioned through-holes, based on which markings bearing excellent endurances and physical appearances can be easily provided.

4. Brief explanation of the figures

Figures show application examples of the present invention, and of these, Figure 1 is a partial oblique view diagram, whereas Figure 2 is a diagram which shows a cross-sectional view of the II-II line in Figure 1, whereas Figure 3 through Figure 5 are diagrams which show cross-sectional views of modified examples, whereas Figures 6 (A) and (B) are diagrams which show plane views of arrayed through-holes, whereas Figure 7 is a magnified cross-sectional view diagram provided for explaining through-holes, whereas Figures 8 (A) and (B) are abstract demonstrational diagrams provided for explaining hole punching molds.

(1): Marking substrate; (2): Application sheet; (3):
Tackifier for temporary adhesion; (4): Tackifier layer; (5):
Peelable paper; (6): Through-holes.

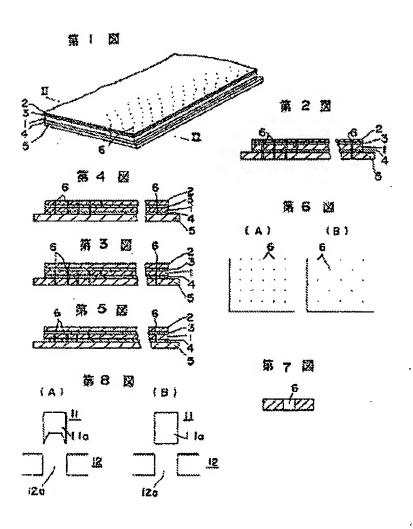
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/<u>4</u>

Figures 1-8



PATENT ABSTRACTS OF JAPAN

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(71)Applicant:

NICHIBAN CO LTD

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18.10.1988

(72)Inventor:

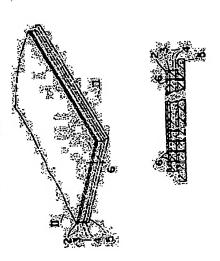
KAWAKATSU YOSHIYA NAKO KEICHIROU

(54) MARKING SHEET

(57)Abstract:

PURPOSE: To obtain a marking sheet, capable of readily releasing air present between the sheet and an adherend surface, excellent in durability and appearance and useful as exterior trim displays, such as vehicle, etc., by applying an application sheet having through-holes of a specific hole diameter through a tacky agent layer to a release paper.

CONSTITUTION: The objective marking sheet, obtained by applying an application sheet 2, having through-holes 6 of 0.2-1.0mm hole diameter at an interval of 1-10mm and temporarily bonded with a tacky agent 3 for temporary bonding to the top surface of a marking substrate having a release part 5 applied through a tacky agent layer 4 thereto and capable of closely adhering uniformly to the whole surface of an adherend without fine split, unevenness, etc., on the peripheral walls of the through-holes and anything, such as cracking, causing peeling.



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DERWENT-ACC-NO:

1990-167490

DERWENT-WEEK:

199022

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TITLE:

Marking sheet has peeling paper laminated on

lower side

of base sheet with adhesive, and application

sheet on

upper side

INVENTOR: INAKO K; KAWAKATSU Y

PATENT-ASSIGNEE: NICHIBAN KK[NICB]

PRIORITY-DATA: 1988JP-260625 (October 18, 1988)

PATENT-FAMILY:

PUB-NO PUB-DATE LANGUAGE

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APPLICATION-DATA:

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TYPE IPC DATE CIPP B32B7/06 20060101 CIPS C09J7/02 20060101

CIPS G09F3/02 20060101

ABSTRACTED-PUB-NO: JP 02107682 A

BASIC-ABSTRACT:

Marking sheet comprises an application sheet laminated on the upper side of a

base sheet and peeling paper laminated on the lower side of the sheet through

an adhesive layer. The marking sheet has through-holes of 0.2-1 mm.

USE - For marks and signs in the outer surface of vehicles. @(4pp Dwg.No.0/8)

TITLE-TERMS: MARK SHEET PEEL PAPER LAMINATE LOWER SIDE BASE ADHESIVE

APPLY

UPPER

DERWENT-CLASS: G03 P73

CPI-CODES: G03-B04;

SECONDARY-ACC-NO:

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19日本国特許庁(JP)

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審査請求 未請求 請求項の数 7 (全4頁)

会発明の名称 マーキングシート

②特 顧 昭63-260625

②出 顧 昭63(1988)10月18日

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- / 発明の名称 マーキングシート
- ユ 特許請求の範囲
 - / 上面にアプリケーションレートを仮着し下面 に粘着剤層を存して剝離紙を貼着したマーキン グ基材を育するマーキングシートであつて、前 ぇ 発明の詳細な説明 記マーキングシートにはこれを貫通する孔径 0.2~1.0=の通孔を1~10=の間隔で配設 したマーキングレート。
- アプリケーションレートが通孔を有しない詩 求項ノ記載のマーキングシート。
- 3 射離紙が通孔を有しない請求項ノ記載のマー キングレート。
- 4 アプリケーションシートと剝離紙が通孔を有 しない請求項ノ記載のマーキングシート。
- s アプリケーレヨンレートを有しない請求項ノ 記載のマーキングシート。

- る 通孔が切抜加工によつて形成された精浓項ノ、 2、3、4又は5記載のマーキングシート。
- 2 通孔が円形乃至楕円形状である請求項ノ、2、 3、8または5記載のマーキングシート。

〔産業上の利用分野〕

本発明は各種乗物の単体、機体、車輛等の外装 概示用、屋外看板用、店舗内の標識表示用等に用 いられるマーキングシートに関する。・

〔 從来技術 〕

従来マーキングシートは例えば乗物の車体、機 体等の外袋標示として使用するさい所襲のマーキ ングシートの粘着面に貼着されている別離紙を除 き、粘着剤を介して前記被着体面に貼りつけて所 要のマーキングを行なつているが、マーキングシ ートを貼るさい彼奇体との間に空気等の介入によ り、あるいは貼付後被着体等から発生するガス等 により局部的に剝れや膨れを生じ、外見を害する ばかりでなく、耐久性を著しく低下する。これを

佛除するためへら等の貼付具を用い表面を押圧移 動しつつ貼付する方法が行なわれているが、全面 均一に密君させることは極めて困難で、しかもこ れには、熟練した技能、多くの手数と時間を要す る。このような欠点を除くため、例えばマーキン グシートを構成する粘着制備機局基材に空気抜き の孔を設けたもの、前記の基材を通気性繊維質で 形成したもの、基材と粘着剤層との間に発泡体。 紙、等の通気性のある多孔質層を設けたもの、粘 費制層を発泡多孔質に形成したもの、前配基材と して平均孔径2~50 mm、通気位2 bb/100cc ~ / 2 0 秒/ / 0 0 C、 厚さ 2 0 μm 以上の連続多 孔質プラスチックフィルムを用いたもの等がある が、通気性、耐久性、作衆性、製造の困難性等の 点において充分満足できるものではない。また前 記の基材に空気抜きの孔を設けたものは、先の尖 つた穿孔工具で突抜いた孔で、孔の周壁にささく れやかえりや凹凸等があるばかりでなく、これら の基部にはひび割れ等が生じており、貼着後、剣 厳等の事故を生じ弱い。

本発明では孔径 0.2~1.0 mの通孔を1~10 ■の間隔にして配列することによつて、マーキン グシートを放マーキングを付与する被替体に貼着 するさい波着体との間に空気が入つても容易に通 孔を介して俳気されて密着でき、剣れや膨みのな い仕上り外見のよい施工が容易にできる。孔径が これより大きくなると、粘着剤が流動し易くなり、 孔径が減小して通気性を阻外するばかりでなく、 孔から水その他の有害故、有害ガス、臨埃等が没 入し、接着面が劣化し耐久性を感くするほか、孔 が目立つと共に下地が見え易くなる等外拠上好ま しくない。また、これより小さくなると通気性が 充分でなく、切抜加工による穿孔ができ進い。ま た孔間の間隔が上記より大になると孔間に介在す る空気、ガス等の排出が円滑にでき難くなり、上 記より小になると切抜加工による穿孔が困嫌にな

また通孔は円形乃至楕円形、好ましくは正円若しくはこれに近い円形に形成され、そのさい穿孔はほぼ前記孔の形状に形成された例えば、環状の

[発明が解決しようとする課題]

一本発明は適度の通気性があり、全面密着が容易で、形成された通気孔の形状等と相俟つて耐久性にすぐれ、外見のよいマーキングが得られるものを提供しようとするものである。

〔課題を解決するための手段〕

上記の目的を達成するため本発明は、上面にアプリンートを仮看し、下面に粘着削層を存して、組織を貼着したコートング基材からなる積極体、利益を配が、アプリンート以外の上記積層体、利益を担づリンートと判益を収入の上記積層体のそれぞれにこれを貫通する孔径のの上記積層体のそれぞれにこれを貫通する孔径のの上記積層体のそれぞれにこれを関連を入り、の上記積層体のそれぞれにこれを関連を入り、の上記積層体のそれぞれにこれを関連を入り、の上記積層体のそれぞれにこれを関連を入り、の上記積層体のそれぞれにこれを関連を入り、の上記積層体のそれぞれにこれを関連を入り、の上記積層体のである。通孔は千鳥形配列、格子形配列のである。通孔は千鳥形配列、格子形配列のである。のである。通孔は千鳥形配列、格子形配列のである。のである。のであるとい条が発生し難く好ましいものである。

また、上記通孔は切抜加工によって形成された ものであり、更にこの通孔は円形乃至楕円形状に 形成したものである。

鋭利な刃型等(第8図A、B)を使用して切抜加工して形成され、通孔壁面にささくれや凹凸等がなく、通孔の周縁部にもかえりのような切りかす等を残さないようにして、ひび割れ、剣維等の事故原因が解消できて、一層耐久性、外見のすぐれたマーキングが得られる。

(実施例)

特別平2-107682(3)

エチレン一酢酸ビニル共電合体系等の所要に許良 された印刷インキを用い例えばスクリン印刷、オ フセツト印刷、フレキソ印刷、グラビア印刷等の 公知の印刷法、普通のコーティング法等により形 成されたインキのフィルムでも同様に使用できる。

この用材には、この積層体を貫通する孔径約 0.6~0.8 = の通孔(6)が孔と孔との間隔を約ょ~ **ノの皿にして配設している。穿孔は孔径に相当に** して形成された環状の鋭利な刃先をもつ刃型(118) を前記間隔に多数配列した上型(押型)aoとこの 刃型に対応してこれを嵌入する孔型 (128)を同様 に配列した下型(受型)02、(第8図A)を用い ,て切抜加工して所要の通孔(6)(第2図)を形成し ている。

第3図のマーキングシートは仮管用粘着剤(8)を 有するアプリケーションレート(2)に通孔を設けて いない以外は第1~2図とほぼ同様に形成したも のが、第4図には射機紙(5)に通孔を設けない以外 は第1~2図とほぼ同様に形成したものが、また 第5図にはマーキング基材(1)と粘着剤産(4)に過孔 g 図面の簡単な説明

図面は本発明の実施例を示し、第1図は一部斜 面図、第2回は第1回の1-1線断面図、第3図 ~第1図は変形例を示す断面図、第6図(A)、(B)は 通礼の配列を示す平面図、第2図は通孔の説明用 の拡大断面図、第8図(A)、(B)は穿孔型の観略説明 図である。

(1)はマーキング益材、(2)はアプリケーションシ. 一ト、131は仮発用粘着剤、(4)は粘着剤局、(5)は別 **雑紙、60は通孔。**

特許出順人 ニチパン株式会社

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を設けた以外は第1~2図とほぼ同様に形成した ものが、それぞれ示されている。いづれも同様に 使用できる。アプリケーションシートには、この マーキングシートを被着体に施用するさい貼滑位 置関係を定める目安となる例えば縦若しくは趙ま たは縦横等の罫線等を設けて貼付作業を容易にす ることもできる。マーキングシートには上記の如 くアプリケーションシートを積崩しないものもあ り得る。

(発明の効果)

本発明は上述の如く構成されているので、通孔 の周盟にはささくれや凹凸等が全く存在せず、ひ び割れ等の剝離の原因となるものがなく、且つ被 着体に施用したさい被殺体面との間に介在する空 気等は容易に通孔を介して放出できて全面均一に 密着でき、マーキング面に局部的な膨出部を生ず ることが全くなく、前記通孔の周壁にささくれや ひび割れ等の不存在と相俟つて、耐久性、外見の すぐれたマーキングが容易にできる。

